

## PATENT COOPERATION TREATY



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P200200483 WO	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/11224	International filing date ( <i>day/month/year</i> ) 09.10.2003	Priority date ( <i>day/month/year</i> ) 20.11.2002
International Patent Classification (IPC) or both national classification and IPC H04L25/02		
Applicant TELEFONAKTIEBOLAGET L M ERICSSON (PUBL)		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the opinion
  - II ☐ Priority
  - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV ☐ Lack of unity of invention
  - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI ☐ Certain documents cited
  - VII ☐ Certain defects in the international application
  - VIII ☐ Certain observations on the international application

Date of submission of the demand  08.05.2004	Date of completion of this report  07.02.2005
Name and mailing address of the international preliminary examining authority:   European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer  Orozco Roura, C  Telephone No. +31 70 340-3890  

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/EP 03/11224

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-21 as originally filed

**Claims, Numbers**

1-14 as originally filed

**Drawings, Sheets**

1/2-2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	4-12,14
	No: Claims	1-3,13
Inventive step (IS)	Yes: Claims	4
	No: Claims	1-3,5-14
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

2. Citations and explanations

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following documents:

D1: DE 196 06 102 A (SIEMENS AG) 21 August 1997 (1997-08-21)

D2: EP-A-0 954 142 (LUCENT TECHNOLOGIES INC) 3 November 1999 (1999-11-03)

V.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

The document D1 discloses (the references in parentheses applying to this document):

A method of determining a DC offset in a communications signal received via a communications channel (column 7, lines 10-12), the communications signal comprising a sequence of training symbols (column 2, line 61); the method comprising:

providing a channel estimate of the communications channel based on said sequence of training symbols (column 7, lines 13-14 and column 2, lines 61-62); determining, based on the channel estimate, an estimate of a noise contribution induced by the communications channel (column 7, lines 34-35 and lines 41-42. The difference between the received data, "Antennendaten", and the data obtained using the estimated channel coefficients, "Modelldaten", is an estimate of a noise contribution.) ; and

determining an estimate of the DC offset from the determined estimate of the noise contribution (column 7, lines 39-43).

The subject-matter of claim 1 is therefore not new.

V.2 The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent claim 13, which therefore is also considered not new.

V.3 Dependent claims 2, 3, 5-12 and 14 do not contain any features which, in combination with the features of any claim to which they refer, meet the

requirements of the PCT in respect of novelty and/or inventive step, for the following reasons:

- The subject-matter of claims 2 and 3 is disclosed in document D1 (see claims 1 and 2). Therefore, the subject-matter of these claims lacks novelty for the same reasons as the subject-matter of claim 1.
- The additional features of dependent claims 5-8 have already been employed for the same purpose in a similar channel estimation method, see document D2, page 4, lines 1-5 and 25-30. It would therefore be obvious to the person skilled in the art, to apply these features with corresponding effect to a method according to document D1, thus arriving at a method according to claims 5-8.
- In claims 9-12 and 14 slight constructional changes in the method of claim 1 and the arrangement of claim 13 are suggested which come within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can be readily contemplated in advance. Consequently, the subject-matter of claims 9-12 and 14 also lacks an inventive step.

V.4 The combination of the features of dependent claim 4 is neither known from, nor rendered obvious by, the available prior art, for the following reasons: None of the prior art documents hints at calculating an inner product of a rotation trend vector and an estimated noise vector representing the determined estimate of the noise contribution, which results in a reduction in complexity of the joint channel-DC estimation.

V.5 Further remarks:

- The features of the claims are not provided with reference signs placed in parentheses as prescribed by Rule 6.2(b) PCT.
- The document D1 is not identified in the description as prescribed by Rule 5.1(a)(ii) PCT.
- Claims are not in the two-part form as prescribed by Rule 6.3(b) PCT.